Facilitating Intelligent Transportation Systems Deployment

21ST CENTURY OPERATIONS USING 21ST CENTURY TECHNOLOGIES

THE CHALLENGE OF SUSTAINING MOBILITY

In the post-interstate era, our nation has struggled to keep pace with the ever increasing demand for travel by its population. This demand now exceeds the existing capacity of the transportation system in many of our major metropolitan areas and is pushing the limits in many others. To put it in perspective, statistics show that the growth in vehicle miles traveled increased by 80 percent between 1980 and 2000 while roadway lane miles increased just 3.8 percent during the same period.

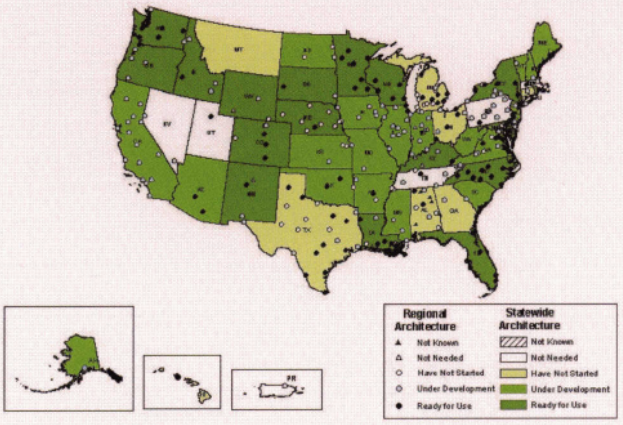
The result, as can be expected, is increased congestion that continues to erode the quality of service being provided. The magnitude of the problem is reflected in a recent survey that cited poor traffic flow as being the most prevalent factor in causing traveler dissatisfaction. We can expect a continued trend of increasing congestion unless changes are made. One such change is to focus on improving the operation of existing systems by deploying and using 21st century technologies.

WHAT WE'RE DOING

Since the early 1990s, the Federal Highway Administration (FHWA) has advocated the use of Intelligent Transportation Systems (ITS) as a means of achieving greater operational efficiency of our transportation system. However, uncoordinated deployment of independent systems that are not integrated and which cannot communicate with neighboring or complementary systems provide little if any benefit. Accordingly, several programs have been established to address congestion and coordinated operations.

One of the tools developed for this purpose is the National ITS Architecture (NA). The NA was developed to provide a unifying framework for ITS infrastructure deployment to ensure that technologies can work together smoothly and effectively. TEA-21 requires that all ITS projects funded from the Highway Trust Fund, including the Mass Transit Account, conform to the NA and applicable standards. Specifically, most State departments of transportation (DOTs) and metropolitan areas are required to develop a regional ITS architecture using the NA as a resource and to use a systems engineering approach for developing ITS projects. The deadline for completing a regional ITS architecture is April 8, 2005.

Statewide and Regional Architecture Development



An important complement to the NA is the standards that define how system components operate within a consistent framework. By specifying how systems and components interconnect, the standards promote interoperability. An ITS Standards Program was established to encourage widespread use of standards, the interoperability of ITS systems, and interchangeability of devices. This program is maturing from a primarily standards development program by rapidly moving into standards deployment support.

While progress has been made, many State and local transportation agencies still require assistance and support in developing a regional ITS architecture and in understanding how to properly use and maintain it once developed. Likewise, assistance and support in applying standards is also needed. The challenge is in providing the support necessary to help these agencies in their transition to using advanced technologies for improved operations in a systematic fashion that focuses on integration and interoperability.

Future Direction

Operational efficiencies will be increased and congestion will be reduced when State and local agencies are provided the necessary guidance and support to deploy and use ITS. To that end, FHWA's Office of Operations has established an ITS Deployment Team charged with accelerating and facilitating ITS deployment in a consistent manner across the nation. The Deployment Team develops ITS program strategies and provides technical and program expertise to Federal field office staff in the focal areas of architecture, standards, systems engineering, integration, and operations support. They are equipped with the skills, knowledge, and information to effectively support integrated ITS deployment and other key ITS initiatives with State and local transportation agencies.

Both FHWA staff and contracted services provide **technical assistance** for architecture and standards. The Peer-to-Peer program has a network of over 120 U.S. DOT-approved ITS professionals to provide technical assistance.

A suite of **training courses and workshops** has been developed by the Office of Operations to support State DOTs and local agencies in ITS architecture systems engineering and standards implementation.

The **architecture training suite** of courses and workshops are designed to assist in the development and implementation of regional architectures. Efforts are currently under way to expand the support material available to focus more on the use and maintenance of completed architectures.

The **system engineering suite** of courses are designed to build a solid foundation for successful ITS project planning, deployment, and operations.

The **ITS standards suite** of courses and workshops are designed to assist in the use of standards for planning, designing, procuring, deploying and operating ITS systems.

Additional resources can be found on the ITS Deployment Team Web site at http://www.ops.fhwa.dot.gov/travel/Deployment_Task_Force/task_force.htm.

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